#### AG 11.31

Refer to the Rebuttal Testimony of Stephen Colyer, AIC Ex. 22.0, on line 1119. Please provide the amount spent for well logging in 2013, 2014 and 2015. Explain the reasons for the increase or decrease year over year from 2013 to 2016. Provide the number of wells logged or projected to be logged by year from 2013 to 2016.

**RESPONSE**: (Do not edit or delete this line or anything above this. Start typing

your response right BELOW Date.)
Prepared By: Stephen R. Colyer

Title: Sr. Director, Gas Operations & Services

Phone Number:217-424-6933

Date: 08/04/2015

The amount spent for well logging was \$387,000 in 2013, \$1,037,000 in 2014, and \$2,233,440 is forecasted for 2015.

The increase from 2013 to 2014 is primarily due to performing a greater volume of logs and the utilization of the High Resolution Logging tool which is a higher cost per log when compared to previously utilized technologies.

The increase from 2014 to 2015 is primarily due to the activities specified in Ameren Exhibit 22.9. The program described includes a new program that has not been previously implemented as described in the Rebuttal Testimony of Stephen Colyer, AIC Ex. 22.0, on lines 1120-1135.

The decrease from 2015 to 2016 is primarily due to the difference in the planned activities specified in logging activities from Ameren Exhibit 22.9 and Ameren Exhibit 22.10. The difference is performing a noise log at Hookdale storage field in 2015 which will not be performed in 2016.

In 2013, 20 wells were logged. In 2014, 52 wells were logged. There are 96 wells that will be logged in 2015 and approximately the same number in 2016.

AG 11.33

Refer to the Rebuttal Testimony of Stephen Colyer, AIC Ex. 22.0, on lines 1132-1135. Please provide the amount to be spent on well logging in 2017 and future years.

**RESPONSE**: (Do not edit or delete this line or anything above this. Start typing

your response right BELOW Date.)

Prepared By: Stephen R. Colyer

Title: Sr. Director, Gas Operations & Services

Phone Number:217-424-6933

Date: 08/04/2015

The forecasted well logging expenditures in 2017 are \$2.3 Million. The forecasted amount beyond 2017 is at the 2017 level plus an annual increase of 2% each year.

AG 11.34

Refer to the Rebuttal Testimony of Stephen Colyer, AIC Ex. 22.0, on line 1165. Please provide the amount spent for wellhead maintenance in 2013, 2014 and 2015. Explain the reasons for the increase or decrease year over year from 2013 to 2016.

**RESPONSE:** (Do not edit or delete this line or anything above this. Start typing

your response right BELOW Date.)
Prepared By: Stephen R. Colver

Title: Sr. Director, Gas Operations & Services

Phone Number:217-424-6933

Date: 08/04/2015

The amount spent for wellhead maintenance was \$50,100 in 2013, \$582,000 in 2014, and \$700,000 forecasted for 2015.

The increase from 2013 to 2014 is primarily due to wellhead maintenance work completed at the Ashmore storage field in 2014 in order to prepare and enable the wells for well logging and maintenance activities.

The increase from 2014 to 2015 is primarily due to the activities specified and planned in Ameren Exhibit 22.9 under project #J0125 Well Head, which is about \$118,000 more work than performed in 2014.

The decrease from 2015 to 2016 is primarily due to the difference in the planned activities specified in logging activities from Ameren Exhibit 22.9 and Ameren Exhibit 22.10. The difference is performing wellhead seal replacements at Lincoln, master valve replacement on the Sentry Royalty #3 well at Johnston City, replacing an inoperable valve on Poland #4 at Hookdale, replacing 2 ball valves at well heads at Sciota, changing primary and secondary seals at Glasford, and repairing the sub surface safety valves at Johnston City and Tilden in 2015. These activities are not being performed in 2016.

AG 11.35

Refer to the Rebuttal Testimony of Stephen Colyer, AIC Ex. 22.0, on lines 1176-1177. Please provide the amount to be spent on wellhead maintenance in 2017 and future years.

**RESPONSE**: (Do not edit or delete this line or anything above this. Start typing

your response right BELOW Date.)

Prepared By: Stephen R. Colyer

Title: Sr. Director, Gas Operations & Services

Phone Number:217-424-6933

Date: 08/04/2015

The forecasted well head maintenance expenditures in 2017 are \$425,000. The forecasted amount beyond 2017 is at the 2017 level plus an annual increase of 2% each year.

AG 11.36

Refer to the Rebuttal Testimony of Stephen Colyer, AIC Ex. 22.0, on line 1203. Please provide the amount spent for Well Work in 2013, 2014 and 2015. Explain the reasons for the increase or decrease year-over-year from 2013 to 2016.

**RESPONSE:** (Do not edit or delete this line or anything above this. Start typing

your response right BELOW Date.)
Prepared By: Stephen R. Colver

Title: Sr. Director, Gas Operations & Services

Phone Number:217-424-6933

Date: 08/04/2015

The amount spent during 2013 was \$320,000, 2014 was \$400,000, and the forecast for 2015 is \$2,256,000.

The increase from 2013 to 2014 was primarily due to a valve failure at the Synder #2 well at Hillsboro Storage Field, which required replacement.

The increase from 2014 to 2015 is primarily due to the activities specified and planned in Ameren Exhibit 22.9 under project #J0127 Well Work, which is \$1,856,000 of additional projects than were performed in 2014.

The decrease from 2015 to 2016 is primarily due to the difference in the planned activities specified in logging activities from Ameren Exhibit 22.9 and Ameren Exhibit 22.10. The difference is performing a well workover at Hookdale, biocide treatments at Hillsboro, liner patch installation at Poland #2 at Hookdale, drilling out a composite plug at Lincoln, retrieving a neutron logging tool at Hillsboro, repair of a sub-surface safety valve at Johnston City, and replace Miller #1 top tubing joint at Ashmore in 2015. The activities are not being performed in 2016.

AG 11.37

Refer to the Rebuttal Testimony of Stephen Colyer, AIC Ex. 22.0, on lines 1214-1224. Please provide the amount to be spent for Well Work in 2017 and future years.

**RESPONSE**: (Do not edit or delete this line or anything above this. Start typing

your response right BELOW Date.)

Prepared By: Stephen R. Colyer

Title: Sr. Director, Gas Operations & Services

Phone Number:217-424-6933

Date: 08/04/2015

The forecasted well work expenditures in 2017 are \$1,817,000. The forecasted amount beyond 2017 is at the 2017 level plus an annual increase of 2% each year.

AG 11.38

Refer to the Rebuttal Testimony of Stephen Colyer, AIC Ex. 22.0, on line 1254. Please provide the amount spent for well testing in 2013, 2014 and 2015. Explain the reasons for the increase or decrease year-over-year from 2013 to 2016. Provide the number of wells tested or projected to be tested by year from 2013 to 2016.

**RESPONSE**: (Do not edit or delete this line or anything above this. Start typing

your response right BELOW Date.)
Prepared By: Stephen R. Colyer

Title: Sr. Director, Gas Operations & Services

Phone Number:217-424-6933

Date: 08/04/2015

The amount spent for well testing was \$6,000 in 2013, \$23,000 in 2014 and \$8,000 is forecasted for 2015. These costs were required to measure well flows and provide instantaneous information on the current flow performance of the well to evaluate well performance.

The increase from 2013 to 2014 was primarily due to an extended bottom hole pressure test at Hillsboro storage field using an external contractor. The test was required to determine the true pressure as measured at the bottom of the well in the gas storage zone. The bottom hole pressure is required versus taking a reading at the surface due to interference by water at the end of the withdrawal season. The information is utilized to improve the accuracy of the reservoir simulation model which is critical to predicting storage field performance.

The decrease from 2014 to 2015 is primarily due to the activities specified in Ameren Exhibit 22.9. The difference is performing an extended bottom hole pressure test at Hillsboro storage field in 2014 and not performing the same test in 2015.

The increase from 2015 to 2016 is primarily due to the activities specified in Ameren Exhibit 22.10. The well testing program as stated in the Rebuttal Testimony of Stephen Colyer, AIC Ex. 22.0 Rev., in lines 1225-1267 begins in 2016.

Please see AG 5.15 regarding the number of wells tested or projected to be tested by year from 2013 to 2016. Note that the tests planned for 2016 consist of different types of well tests than those completed in 2013 - 2015.

AG 11.39

Refer to the Rebuttal Testimony of Stephen Colyer, AIC Ex. 22.0, on lines 1261-1267. Please provide the amount to be spent for well testing in 2017 and future years.

**RESPONSE**: (Do not edit or delete this line or anything above this. Start typing

your response right BELOW Date.) Prepared By: Stephen R. Colyer

Title: Sr. Director, Gas Operations & Services

Phone Number:217-424-6933

Date: 08/04/2015

The forecasted well testing expenditures in 2017 are \$410,000. The forecasted amount beyond 2017 is at the 2017 level plus an annual increase of 2% each year.

AG 11.40

Refer to the Rebuttal Testimony of Stephen, AIC Ex. 22.0, on line 1313. Please provide the amount spent for reservoir modeling in 2013, 2014 and 2015. Explain the reasons for the increase or decrease year-over-year from 2013 to 2016.

**RESPONSE:** (Do not edit or delete this line or anything above this. Start typing

your response right BELOW Date.)
Prepared By: Stephen R. Colver

Title: Sr. Director, Gas Operations & Services

Phone Number: 217-424-6933

Date: 08/04/2015

The amount spent for reservoir modeling during 2013 was \$409,500, during 2014 was \$192,500, and \$400,000 is forecasted for 2015.

The decrease from 2013 to 2014 was primarily due to a comprehensive reservoir model build that was completed in 2013 for the Glasford Storage Field. With the emphasis on this model build, AIC performed model updates for the remaining, existing models in 2014, which resulted in lower costs.

The increase from 2014 to 2015 is primarily due to the activities specified and planned in Ameren Exhibit 22.9 under project #J0124 Res. Simulation, is \$207,500 more work than performed in 2014.

The increase from 2015 to 2016 is primarily due to the activities specified in Ameren Exhibit 22.10. The difference is primarily due to a seismic simulation study at Glasford, a comprehensive model update to the Sciota reservoir model, and initiating a reservoir simulation model for Hookdale.

#### AG 11.41

Refer to the Rebuttal Testimony of Stephen Colyer, AIC Ex. 22.0, on lines 1332-1335. Please provide the amount to be spent for reservoir modeling in 2017 and future years.

#### **RESPONSE:**

Prepared By: Stephen R. Colyer

Title: Sr. Director, Gas Operations & Services

Phone Number:217-424-6933

Date: 08/04/2015

The forecasted reservoir modeling expenditures in 2017 are \$965,000. The forecasted amount beyond 2017 is at the 2017 level plus an annual increase of 2% each year.

#### AG 11.42

Refer to the Rebuttal Testimony of Stephen Colyer, AIC Ex. 22.0, on lines 1336-1342. Please provide the amount spent for other well expenses in 2013, 2014 and 2015. Explain the reasons for the increase or decrease year over year from 2013 to 2016.

**RESPONSE:** (Do not edit or delete this line or anything above this. Start typing

your response right BELOW Date.)
Prepared By: Stephen R. Colver

Title: Sr. Director, Gas Operations & Services

Phone Number:217-424-6933

Date: 08/04/2015

The amount spent for other well expenses was \$670,000 in 2013, \$896,000 in 2014 and \$680,000 is forecasted for 2015.

The increase from 2013 to 2014 is primarily related to an increase in overtime labor costs experienced due to extreme winter conditions.

The decrease from 2014 to 2015 is primarily due to a decrease in overtime labor costs with a return to more typical winter conditions in 2015, as compared to the extreme winter conditions experienced in 2014.

The decrease from 2015 to 2016 is primarily due to a decrease in transportation loadings and forecasted union labor for other well expenses in 2016.